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June 13, 2000

Ms. Magalie Roman Salas
Office of the Secretary
Federal Communications Commission
445 Twelfth St., S.W. Room TW-A325,
Washington, D.C. 20554

Reference: NOI Comments ET Docket No. 00-47

Dear Ms. Salas,

This electronic submission is sent from AirNet Communications Corporation, Melbourne, Florida, to the FCC as Comments to the Notice of Inquiry In the Matter of Inquiry Regarding Software Defined Radios (SDR), ET Docket No. 00-47.

AirNet appreciates the opportunity to be involved in this most important comment phase of the inquiry and would like to assure the FCC that we are committed to provide the necessary resources to assist the FCC in their efforts to furthering the SDR technology in the U.S. and the international market place.

If there are any questions or any additional information needed in advance of the reply comments, please contact me.

Sincerely,

Timothy J. Mahar
VP Marketing and Business Development

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AirNet Comments To the FCC Notice of Inquiry

ET Docket No. 00-47

Section 1
Introduction

AirNet® Communications Corporation is pleased to provide comments on the FCC Notice of Inquiry related to Software Defined Radios (SDR) and identified as ET Docket No. 00-47.

AirNet, a United States based manufacturer of telecommunications equipment, was founded in 1994, with corporate offices located in Melbourne, Florida. Today, AirNet has 263 employees in the fields of marketing/sales, research, development, manufacturing, customer service/installation and administration. AirNet's product portfolio is based on the principles of a Software Defined Radio network architecture serving the wireless Personal Communications Services (PCS) industry. This technology was originally conceived at Harris Corporation and developed at AirNet into a commercial technology. ***AirNet is the only manufacturer in the world actively developing and commercially deploying SDR base stations using Digital Signal Processing (DSP) techniques to control power, frequency, modulation, and signaling protocols, and to provide multiple protocols (multi-mode) multiple frequency band (multi-band) wireless services. In 1998, AirNet's SDR technology became the only infrastructure ever to be awarded the prestigious "Best Technical Innovation Award" by over 200 worldwide service providers.*** AirNet has numerous SDR related patents granted, allowed, and pending.

The AirNet complete base station system product line includes the AdaptaCell™ high-capacity broadband software-defined base station and the AirSite® Backhaul Free Base Station™, that enable wireless service providers to offer cost-effective services in metropolitan, suburban, and rural areas as well as along highway corridors. The AirNet customer base includes PCS license holders in the United States and International markets.

AirNet believes that idle spectrum is a waste of a limited and precious resource. SDR can efficiently control and utilize the sharing and usage of unused spectrum. AirNet believes that the efficient spectrum management and improved transmission characteristics are critical factors in the management of wireless telecommunication networks. As illustrated through out this document, AirNet believes that there is sufficient technology and expertise now to implement and deploy a nationwide and global network employing SDR technology. The advantages of such an advanced network include a virtual elimination of hardware changes to update a network, and thus providing rapid new feature introduction, the capability of sharing spectrum, providing multi-band/multi-mode operation on a single base station, and improving transmission characteristics to such a network. Thus, AirNet is pleased with the Commission leadership in promoting SDR technology for the U.S. market to benefit the consumers as well as network operators.

Section 2 - 6
Background

As noted in the NOI, SDR could have far reaching implications in all areas of wireless communications. AirNet has proven that the technology is viable and that SDR has already advanced to the state that many of the capabilities, features, and services as mentioned in the NOI are in fact available today. The SDR technology that AirNet has developed for the commercial wireless market was first developed for defense applications by the Harris Corporation of Melbourne, Florida. After being spun-off from the Harris Corporation, AirNet developed and deployed SDR base station equipment for the U.S. PCS market. This base station equipment provides the benefits of lowering operating costs by adapting to multiple communication standards and providing simultaneous multiple protocols (multi-mode) and multiple frequency band (multi-band) operation. AirNet equipment is also a broadband radio operating on 10 MHz bandwidth, using SDR technology to improve transmission capabilities including filter response, out-of band-emissions, and adjacent channel interference.

The capabilities that have been implemented are, however, not limited to the PCS band. By using the same SDR technology, AirNet has developed a base station that could provide simultaneous analog and PCS calls on the same base station. In addition, the AirNet SDR base station is software upgradeable to the wireless Internet. This demonstrates the vast capabilities that are implemented today and can be implemented in the near future. The expectations and capabilities noted in the NOI are realistic and achievable.

Section 7/8
State of Software Defined Radio Technology

The NOI envisions an evolutionary step that will take place with the development of SDR to extend today's technologies to higher frequencies, larger bandwidths, improved transmitter functionality, and lower cost systems. As AirNet describes in these comments, that evolution has already started and SDR technology is being deployed today providing those capabilities.

The following is a brief technical description of the AirNet SDR architecture to help the FCC better understand the functionality of the system in regards to the control of the four primary radio characteristics including operating frequency, modulation, power, and protocols for simultaneous multi-mode and multi-band operation.

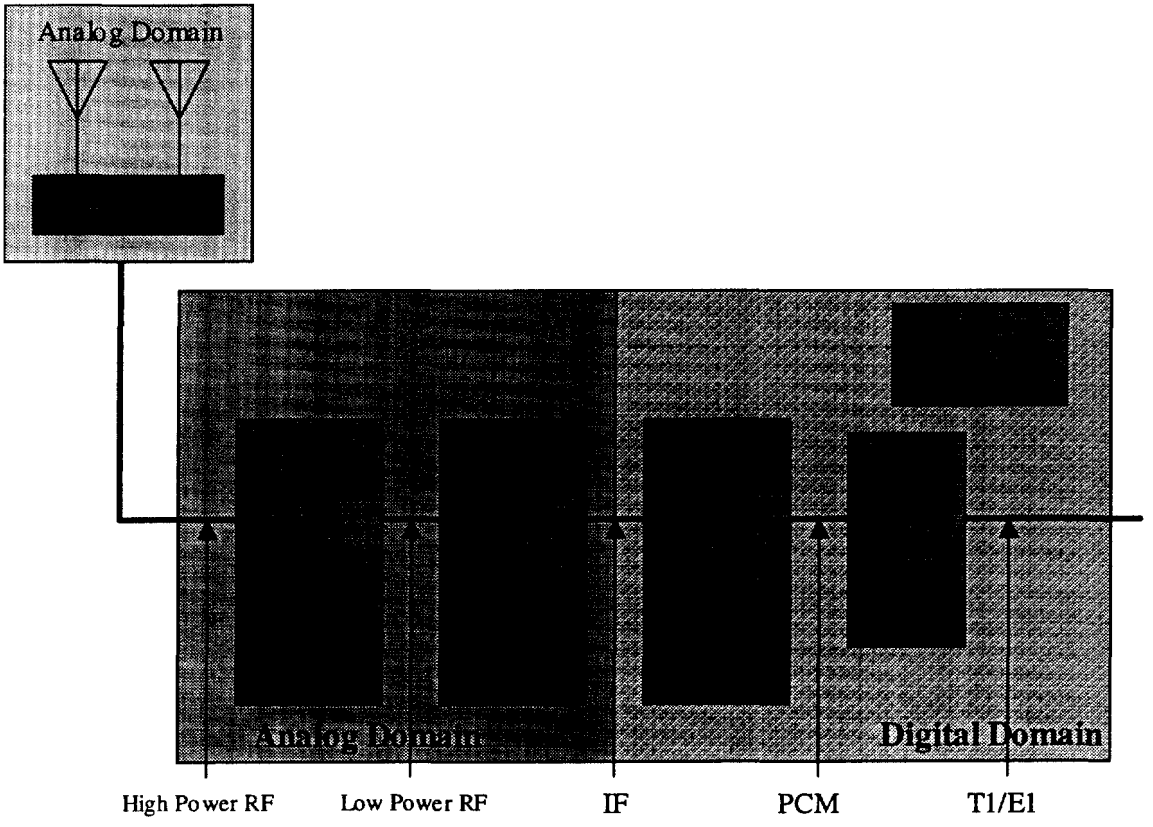

Figure 1. High Level Architecture of an SDR Base Station

The following are high level descriptions of the components of an SDR base station as illustrated in figure 1 above:

- Duplexer/Filter

  - Duplexer provides the ability to transmit and receive radio frequency (RF) signal using a common antenna
- Wideband Multi-Carrier Power Amplifier/Wideband Transceiver Unit
  - Wideband Multi-Carrier Power Amplifier (MCPA) provides linear amplification of multiple transmitted radio carrier signals.
  - Wideband Transceiver Unit (WTU) provides upconversion and downconversion of a 5 MHz bandwidth of spectrum containing multiple radio carriers between the radio frequency (RF) and the intermediate frequency (IF).
- DSP Complex contains one or more DSPs to support:
  - Channelizer function receives the wideband IF from the WTU that has been digitized by the A/D converters and extracts all of the radio carriers and downconverts them to baseband signals.
  - Combiner function receives the baseband signals and upconverts each radio carrier to a unique IF signal and simultaneously combines all IF signals into a single wideband digital signal. The single wideband IF signal is fed to the WTU.
  - Demodulation/modulation functions,
  - Equalization,
  - Error correction and interleaving,
  - Power control for both uplink and downlink,
  - Diversity signal processing, and
  - Synchronization.

  All the above functions in the DSP Complex are software controlled.
- CPU
  - Program the center frequency of the radio carriers via software by configuring the WTU and the DSP Complex.
  - Call processing and mobility management functions.
  - OA&M functions such as software download and supervision.
  - Central clocking and synchronization for all subunit operations.

Section 9

What features in a radio are apt to be controlled by software? For example, could the operating frequency, output power, and modulation format be software controlled?

All of the above-mentioned features can be controlled by software in a radio. In fact, these features are currently controlled by software in AirNet's base station products. Output power is software configurable with AirNet's DSP processors and CPU control software. Likewise,

dynamic power control of both uplink and downlink radio communications is software driven. All baseband functions such as modulation format, error correction, synchronization, and equalization are executed within general-purpose digital signal processors. None of these functions has to be performed by fixed-function hardware devices; they can be controlled by software.

In fact, aspects of the operating frequency including radio carrier filtering, center frequency, channel bandwidth, carrier spacing, and combining of transmitted radio carriers are performed via software configurable digital signal processing hardware. Additionally, all of these radio carrier aspects are performed independently of the baseband functions previously mentioned.

What capabilities could software defined radios have that are not found in current radio technology?

SDR, such as AirNet's which is primarily digital, compensate for non-linearities of analog hardware that can introduce undesired spurious performance, inter-modulation products, and other emissions. Thus, as more of the functions within the radio become implemented in digital hardware, SDR provides more control over non-linearities of the radio hardware that could introduce undesired emissions. There are several advantages to linear performance. First, if the SDR is reprogrammed causing changes to the characteristics of the radio carrier such as modulation format, then the spurious performance, inter-modulation, and other undesired emissions are predictable. Degradation in RF performance is not expected. Second, manufacturing and testing of the SDR is also more predictable. Unlike analog components, there are virtually no variations between digital components, so performance from one SDR to the next is the same. Less testing and rework in the manufacturing process, as well as a higher yield are expected, thus providing significant cost savings in the manufacturing process, which can ultimately benefit consumers.

With SDR technology, the same base station hardware can simultaneously support multiple air interface standards. In fact, AirNet demonstrated the capability and flexibility of our SDR base station at TELECOM '95 in Geneva, Switzerland by simultaneously processing calls using both the TACS and NMT-900 air-interface protocols through the same radio transceiver! The SDR technology also provides the ability to control via software the operating frequency, modulation, output power, carrier bandwidth and spacing, and digital filtering functions to support multi-mode and multi-band operations in the wireless networks. These capabilities of SDR provide a future proof evolution path to a new air interface standard for the network operators with minimum investment that will also benefit the consumers.

The current narrowband radio technology (non-SDR) cannot support different standards nor is it upgradeable to different standards; this makes the introduction of new services to the

consumers both expensive and time consuming. With SDR equipment, the speed of services and new technology introduction by the network operators would be much faster, at a lower cost, again benefiting the consumers.

When could software defined radios be deployed commercially, and for what services and purposes?

As a pioneer of SDR technology in the commercial market, AirNet's customers have been deploying SDR based infrastructure since 1997. These wireless operators have utilized the AirNet broadband software defined radio base station to provide commercial cellular services to their wireless customers. The same SDR base station can simultaneously transmit different air interface standards like AMPS, TDMA, or CDMA by upgrading the software to a different version. In fact, the AirNet base station can be upgraded to simultaneously support multiple standards in the same BTS to support 2G and 3G (e.g., Wideband CDMA) mobile subscribers.

What work is being done on software defined radios internationally, and are there any steps the Commission should take to encourage this work?

There are many organizations throughout the world working on the concept of SDR, including the SDR Forum, ITU Working Party 8A, the Japanese regulators, and ETSI in Europe. AirNet believes that there is little coordination or discussions between the active groups. In addition, the real extent of the development progress of the manufacturers is not well known since SDR is not a requirement for near term global systems, i.e., IMT-2000 and other manufacturers have not initiated field trials. It would therefore appear that the output of each group might not be identical, suggesting that compromise will be required when the standardization effort is finally initiated.

AirNet would propose the following steps that the Commission should take to encourage the development of SDR:

1. Consider FCC rule change proposals to permit SDR related experimental licensing.

2. Consider the release of a NOI that would permit the same type of openness (channel spacing/interference) as permitted in Part 24 to be applied to other bands where SDR-type architectures could operate.

Section 10
Interoperability

The NOI describes today's inability for one system to interface with a plurality of other systems or services primarily because of a lack of uniform standards and operating frequencies. The interoperability as described includes all levels of interoperability including the network interface, radio interface, operational support, billing, etc. SDR can support interoperability between those systems and services primarily in the air interface by supporting multiple protocols and other parameters discussed in Section 11. An SDR system can be developed today that will provide a more efficient transmission system using DSP techniques and provide multi-mode and multi-band services between e.g., public mobile services and personal communication services.

Section 11

As noted in the NOI, public safety services agencies from different regional areas cannot communicate with each other since the regional areas use different frequency bands. As a result, the FCC is allocating an interoperability band in the 700/800 MHz band. SDR could solve that problem by providing base stations that could dynamically modify the operating frequency, power, and modulation of the base station allowing different public safety agencies or services to roam with their normal mobile terminal and interface to a single base station and provide interoperability between users.

To what extent can software defined radios improve interoperability between different public safety agencies?

As described in AirNet's response to "What features in a radio are apt to be controlled by software?" (Section 9), operating frequency, output power, modulation, and protocol are the primary differences between the referenced requirements for licensed radio services. Using the techniques of digital signal processing as found inherently in SDRs, the operating frequency, power, and modulation can be dynamically modified, allowing different public safety agencies or services to interface to a single base station and thus provide interoperability. In addition to the above-mentioned fundamental radio characteristics, services or features such as encryption or frequency conversion, can be dynamically established.

To what extent can software defined radios improve interoperability between equipment and services using different transmission standards?

Using SDR technology, a base station can transmit and receive multiple air interface standard protocols that allow access to wireless services from potentially all subscriber handsets. This will facilitate roaming across networks without multi-mode handsets as required today, thus

lowering the cost for both the operator and the subscribers to support roaming subscribers. This could also enhance competition, since no operator will have an advantage over the other in terms of wireless coverage.

To what extent would software defined radios move toward uniformity in standards within or across bands?

With SDR technology's ability to simultaneously support multiple air interface standards, the move toward uniformity in air interface standards is non-essential. However, a common network interface would be necessary to support interoperability even if the air interfaces are different. SDR technology will aid in the development of multi-mode radios that ease support for non-uniformity within or across bands. The evolution of standards to 3G networks will have more impact than SDR in consolidating the technologies to benefit both operators and wireless users.

To what extent can software defined radios be used to facilitate transitions from one technical standard to another, such as the transition mandated by the land mobile "refarming" proceeding?[1]

This is an area where SDR technology can help tremendously since the SDR-based equipment can operate in a different frequency band or even between different air interface standards because of the SDR technology's unique ability for multiple protocol support. Using the software-defined architecture, the equipment can be software upgraded or modified via database change to operate at different frequencies or different protocols. This is possible due to the inherent capabilities of digital filtering, channel bandwidth and channel spacing to be fully configurable via software.

What particular means could be employed by software defined radios to facilitate interoperability?

With the ability to support multiple protocols in the same base station equipment, SDR will facilitate the interoperability between different standard subscriber handsets. This is exclusive to SDR because of the ability of dynamically allocating traffic channels to users of different standards in the same base station via software.

Section 12
Improve spectrum efficiency and spectrum sharing

Noted.

Section 13

SDR-based technology, such as AirNet's, will enable operators to deploy services quickly using the available air-interface or technology at that time. Then, when the market or technology standard changes, the SDR platform will allow the operators to change carrier frequency, air interface, and other protocols, subject to market demands. SDR technology also allows for much tighter radio carrier spacing than conventional technology allows, due to much better digital filtering techniques used in SDR equipment.

Section 14

SDR technology has the potential of avoiding interference, and thereby providing the highest level of service availability to end-users. It also can support multiple air-protocols within a frequency band, based on end-user demand and spectrum availability. Pending further standardization, the FCC's vision in this area may be achievable, and AirNet is committed to assist in this process. Regardless of the sharing scenario, the SDR technology will improve frequency usage because of the much tighter carrier placements supported as compared to conventional methods.

Section 15

As a leader in software-defined radio technology, AirNet applauds the Commission for supporting innovations in spectrum utilization. We believe that SDR technology can support both narrowband (2^{nd} generation) and wideband (3^{rd} generation) applications, and allows for co-existence of such technologies within a single operator network or between different operator networks. We agree with the Commission that the public interest will be furthered with U.S. leadership in SDR technology, which could prove to be the only viable way to bridge the 2^{nd} and 3^{rd} generation networks. It could also help the re-farming, re-tuning of existing and new networks due to technology changes, regulatory changes and legacy systems.

Section 16

AirNet agrees that SDR technology allows for a primary/secondary operator scenario to be practical. With the advances in digital signal processing technology, digital filtering, multiple carrier power amplifiers and adaptive antennas, it will be possible to develop an all-purpose SDR base station that will support such characteristics as spectrum sharing arrangement.

Section 17

To what extent could software defined radios improve the efficiency of spectrum usage?

SDR technology, coupled with state-of-the-art DSP, digital filtering and MCPA technologies, have the potential of improving the performance of the base station, such that we can achieve the highest spectrum utilization, regardless of the radio interface access standard. Additional RF improvements can be applied on top of the SDR platform for even higher RF utilization, resulting in lower overall interference. The tighter radio carrier spacing with SDR technology will also improve the overall efficiency of spectrum usage.

What particular functions related to spectrum usage could a software defined radio perform? Could it locate free spectrum, dynamically allocate bandwidth, and enable better sharing of the spectrum?

AirNet believes that the SDR platform can potentially support all of the functions mentioned. With the convergence of the computer and telecom technologies, most of the discrete hardware functions that were previously performed by hardware in a base station will become a software process in the SDR platform.

How specifically could it carry out these functions?

AirNet believes that different vendors will have different innovations that could best address their customer needs.

What are the benefits of the spectrum sharing arrangements described above, and what steps might we take to permit the use of software defined radios to enable such sharing arrangements?

With the support of SDR base stations, AirNet believes that virtually all forms of spectrum sharing may be possible. However, AirNet suggests that the FCC and the Congress should take the lead to support SDR base station technology within the U.S., since it will help foster the U.S. industry's leadership in the 3rd generation wireless Internet. We would suggest support via relaxing FCC rules to encourage SDR development and awarding preferential licensing to SDR-based operators.

What changes may be appropriate for the way the Commission currently allocates spectrum?

AirNet believes that SDR will give the Commission more freedom in spectrum allocations in terms of spectrum bandwidth, need of continuity, sharing, and guard-bands.

If changes are warranted, how could we make the transition from the current allocation and licensing model to a new model?

AirNet would propose that FCC set up an Industry-FCC SDR working group to produce concrete recommendations.

Section 18
Equipment approval process

AirNet believes the development of SDR could lead to changes in the procedures by which radio equipment is tested and approved by the FCC without the risk of introducing additional interference.

Section 19

Should we approve the radio hardware, the software or the combination of them?

One of the advantages of SDR is the ability to adapt quickly and easily to market demands for new features and capabilities. Likewise, the FCC rules regarding approval of SDR should support this ability.

AirNet recommends that radio hardware should be approved independently of the software; however, this approval should be with regard to intended use. With this type of hardware approval, separate approval of software or software changes would not be necessary.

With regard to the intended use, rules regarding performance within an intended licensed spectrum band should be somewhat similar as currently provided by the flexible approach for PCS licensed spectrum per Part 24. Within the licensed band, performance should be mainly market driven, with licensees of the RF spectrum determining the desired cost versus performance. Interference issues, if any, will be limited to the licensee's own spectrum. FCC regulations should focus on out-of-band emissions where interference to any licensee's spectrum or that reserved for official government use may be an issue. Therefore, with regard intended use, regulations for the radio hardware approval should be adopted specific to the frequency band and its intended use.

AirNet believes that changes to radio software can be effectively self-regulated and FCC approval is not required unless software changes are made that impair the performance as required by the FCC. Rules should be adopted to ensure that the manufacturer performs and maintains records of testing for out-of-band emissions that are the subject of FCC review with each software change affecting RF performance.

By approving radio hardware and allowing self-regulated software for licensed spectrum band as suggested, AirNet believes that the FCC will foster competition for manufacturers to bring SDR capabilities to the market more quickly without sacrificing performance or increasing interference between users of licensed spectrum. Regulations for use in unlicensed spectrum bands may require additional in-band testing prior to approval of the combination of both hardware and software.

Are the currently required measurements in Part 2 of the rules appropriate for SDR?

AirNet believes that the rules are appropriate but not sufficient. Referencing AirNet's previous answer, radio hardware for licensed spectrum use should be tested to demonstrate the linearity of the radio such that software modifications should not cause a degradation of out-of-band performance. The required testing to demonstrate linearity needs to be studied further and AirNet wishes to encourage the FCC to seek comments on such testing.

How should SDR equipment be tested for compliance, including compliance with SAR requirements? What type of approval process and labeling would be appropriate?

SAR issues are driven mainly by frequency and power. Software functions to control the frequency and power, as supported today, is no different for SDR. AirNet recommends that the radio hardware approval process should remain relatively the same with regard to SAR. Radio hardware should continue to be tested and approved to operate within a specific frequency range and at a maximum power rating to ensure human safety. The approval process and labeling for radio hardware should continue in the same manner as is done currently.

Should we regulate who changes the software and the manner in which it is done? If so, should the Commission maintain records of such modifications?

As suggested by AirNet previously, with the ability to demonstrate linearity of the radio hardware, software changes should not have an impact on out-of-band performance for use in licensed spectrum. Therefore, testing and compliance can be self-regulated, with the FCC maintaining the right to review test records maintained by the manufacturer.

What are the various means that may be used to download new software? We anticipate, for example, that software could be downloaded by methods such as direct connection to a programming device or over the airwaves. To what extent will the software interfaces be standardized?

As the FCC has suggested, there are a variety of methods of software download. However, the degree to which the software download method may be standardized is a market-driven issue. Thus, AirNet does not advocate regulation specifying the method as long as such methods do not violate any current regulations for the use of the media, RF or wired.

Should we require anti-tampering or other security features? How would such security features work? Could equipment be designed to prevent it from transmitting in certain designated frequency bands, such as those allocated exclusively for government use, as a safe guard against causing interference?

Although SDR holds the future capability for the same radio hardware to be used across multiple bands with different software driving the radio depending upon the band of operation, AirNet believes that it will remain necessary to certify the radio hardware for each frequency band of operation to ensure that requirements for out-of-band interference are not violated for a particular frequency band. While there are numerous methods that could be employed to ensure that the radio equipment is allowed to function only in the intended band, the simplest

method is typically the best and most reliable. With the potential that all functions of the SDR are software configurable, a simple replaceable passive hardware bandpass filter on the RF front-end ensures that the SDR-based radio operates only in its intended band. As such, care should be taken if and when any regulation requiring anti-tampering or other security features is drafted to ensure that such regulation does not impose unnecessary complexity on the design of the SDR.

Do we need to adopt additional requirements for SDR to ensure the privacy of users' communication?

Laws are currently in place to prevent such eavesdropping and to prevent the manufacture or use of any type of radio for such purpose other than by an authorized law enforcement agency. As such, supporting requirements to ensure users' privacy is an independent and separate issue from SDR. Encoding methods used on current digital communication protocols already increase the difficulty of invading a user's privacy. Burdening the design of SDR with requirements to ensure privacy in SDR equipment could also generate direct conflicts with existing requirements set forth by CALEA. Nevertheless, the requirements for user privacy if any, should apply equally to SDR and non-SDR equipments to ensure full benefits to consumers.

Section 20

AirNet believes that such an approval system for software modifications is not necessary if SDR hardware is regulated as previously suggested in our response to paragraph 19, particularly for users of licensed spectrum. Adding regulations would significantly burden the design of SDR, adding a cost and regulatory disadvantage versus non-SDR.

Section 21

Is there a need for such an approval system, and is it feasible and practical?

As stated previously, AirNet believes that such approval system is not necessary if SDR hardware is regulated as previously suggested in our response to paragraph 19, particularly for users of licensed spectrum. Adding regulations would significantly burden the design of SDR equipment, adding a cost and regulatory disadvantage versus non-SDR.

What type of authentication system should be used? Should there be one system or alternative systems? Who should have responsibility for generating the authentication codes: the FCC, TCBs, equipment manufacturers, or some other party?

As stated previously, AirNet believes that such a system is not necessary. Furthermore, the authentication system, regardless of the responsible party, would add additional cost to the end user that would offset the advantages of SDR.

In the case of transmitters subject to verification how should authentication of software be handled? For example, could an "authentication only" service be offered in which the FCC or TCB computes the authentication code for the software after all elements of compliance with the FCC rules are verified by the manufacturer?

As stated previously, AirNet believes that such a system is not necessary.

How should simple changes to software be handled that do not affect the operating parameters of the equipment but require the computation of a new authentication code? Could an "authentication only" service be offered for them?

As stated previously, AirNet believes that such a system is not necessary.

Is there a need for a method to display information about the software loaded in a transmitter? If so, what method should be used and what information should be displayed?

AirNet does not believe that SDR should have displays for user information. Some SDR applications, such as wireless base station equipment, are designed for installation in locations where operator access is performed remotely. Such local displays are unnecessary and would add a cost burden to support such a local display integrated with the SDR.

Section 22
Other Matters

In summary, AirNet believes that idle spectrum is a waste of a limited and precious resource. SDRs can efficiently control and utilize the sharing and usage of unused spectrum. AirNet believes that the efficient spectrum management and improved transmission characteristics are critical factors in the management of wireless telecommunication networks and the FCC should consider rule changes to ensure that the industry rapidly applies the resources to develop and deploy such networks. AirNet believes that there is sufficient technology and expertise now to implement and deploy a nationwide and global network employing SDR technology. The advantages of such an advanced network include a virtual elimination of hardware changes to update a network, and thus providing rapid new feature introduction, the capability of sharing spectrum, providing multi-band/multi-mode operation on a single base station, and improving transmission characteristics to such a network.

AirNet would propose the following steps that the Commission should take to encourage the development of SDR:

1. Consider FCC rule change proposals to permit SDR experimental licensing.

2. Consider the release of a NOI that would permit the same type of openness (channel spacing/interference) as permitted in Part 24 to be applied to other bands that SDR-type architectures would operate.

The NOI also requests comments on the capabilities of SDR to provide services that are accessible to persons with disabilities. As discussed throughout these comments, SDR can control power, modulation, frequency, and protocol for different mobile phones, including legacy wireless terminals for the disabled. Improved speech, text, video, and Internet access are but a few of the futuristic services that can be provided. There are virtually no radio interface characteristics that cannot be dynamically software downloadable. Compatibility and interoperability with new mobiles for the disabled can be provided by software downloads. With SDR technology, there is no longer the issue that the hardware changes required will exclude terminals for the disabled or persons with disabilities.

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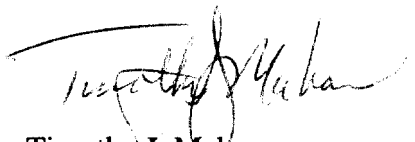
AirNet applauds the FCC for their involvement and support of SDR to date. As stated herein, AirNet believes that SDR can provide a communications network with the ability to quickly develop and deploy new features and capabilities without the necessity to change out hardware and still maintain a competitive market place.

Sincerely,



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